

Implementing UCAP-Light Counting for Thermal Facilities

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CPUC RESOURCE ADEQUACY REFORM TRACK WORKSHOP 3

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REVIEW OF CAISO'S UCAP PROPOSAL

- ▶ In the Future of RA Report, CAISO proposed a full UCAP counting methodology for thermal resources
- ▶ Under the proposal, CAISO would calculate hourly unavailability factors as the sum of a unit's unavailable capacity due to forced and urgent outages divided by its P_{max}
 - ▶ Hourly factors only calculated for the top 20% of hours with the tightest supply conditions
- ▶ Seasonal availability factors calculated separately for summer and winter seasons
 - ▶ 1 - the average of the hourly unavailability factors in each season

IEP PROPOSAL FOR UCAP-LIGHT

- ▶ IEP proposes a similar approach using only outages reported under the “Ambient Due to Temp” category
- ▶ Diminished capacity due to ambient derates can be averaged over tight supply hours like UCAP
- ▶ Due to data limitations, illustrative examples are shown using a single day for winter and an average of one hot and one typical summer day
- ▶ Availability factor calculated based on P_{max} ; when $P_{max} - \text{derate} > \text{NQC}$, availability = 100%

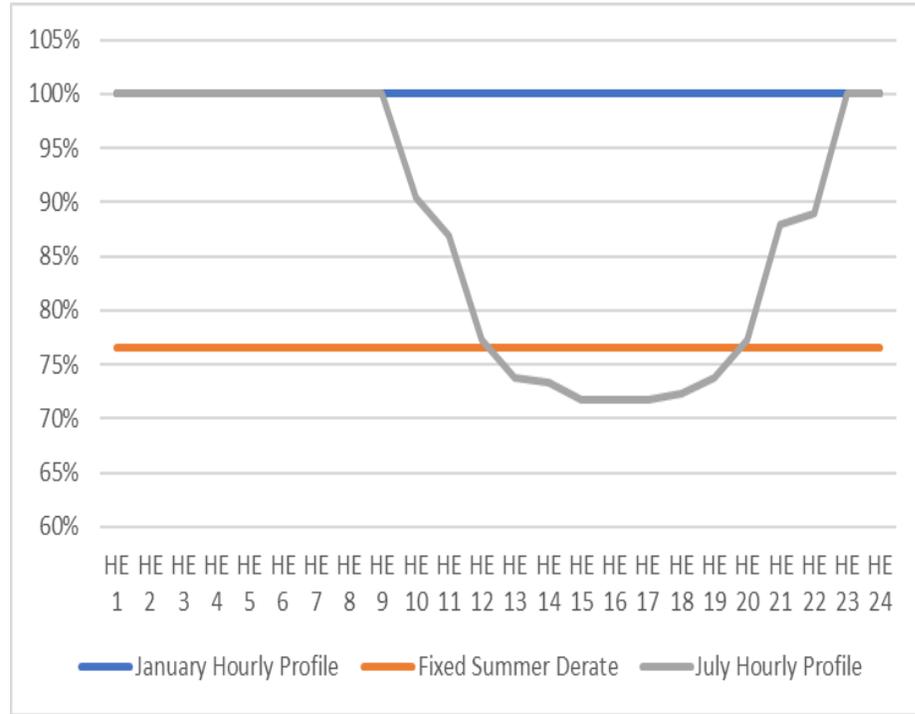
Avg Ambient Availability, 4 pm to 9 pm

Plant	Location	NQC S/W	Pmax	Avg July 9 and 16, 2021	Jan 5, 2022
Marsh Landing 1	Antioch, CA	191/ 203	204	98.0%	97.4%
La Paloma Unit 1	Kern County	260	267	95.3%	96.1%
Midway Peaking	Fresno County	108/ 120	120	88.7%	99.0%
Desert Star Energy Center	Searchlight, NV	419	495	76.6%	100.0%

Hourly Generation Shape Alternative

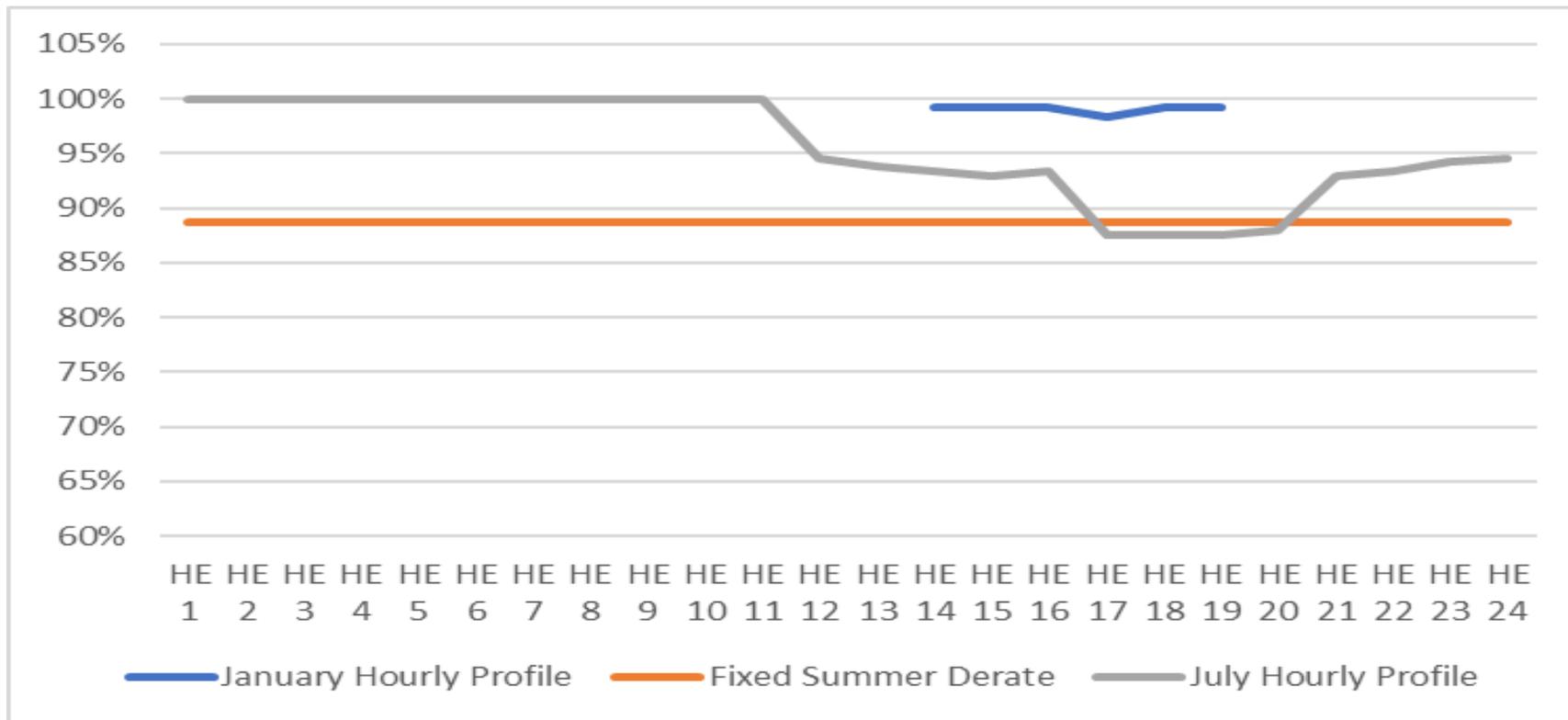
- ▶ Plants that are particularly susceptible to ambient temperature effects have pronounced diurnal generation profiles in the summer
- ▶ LSEs may find that an hourly ambient temperature-adjusted profile is more valuable than a fixed derate across all hours
- ▶ Nighttime and early morning output is higher than fixed derate would suggest
- ▶ Hourly generation shape could complement solar output

Desert Star Hourly Profile

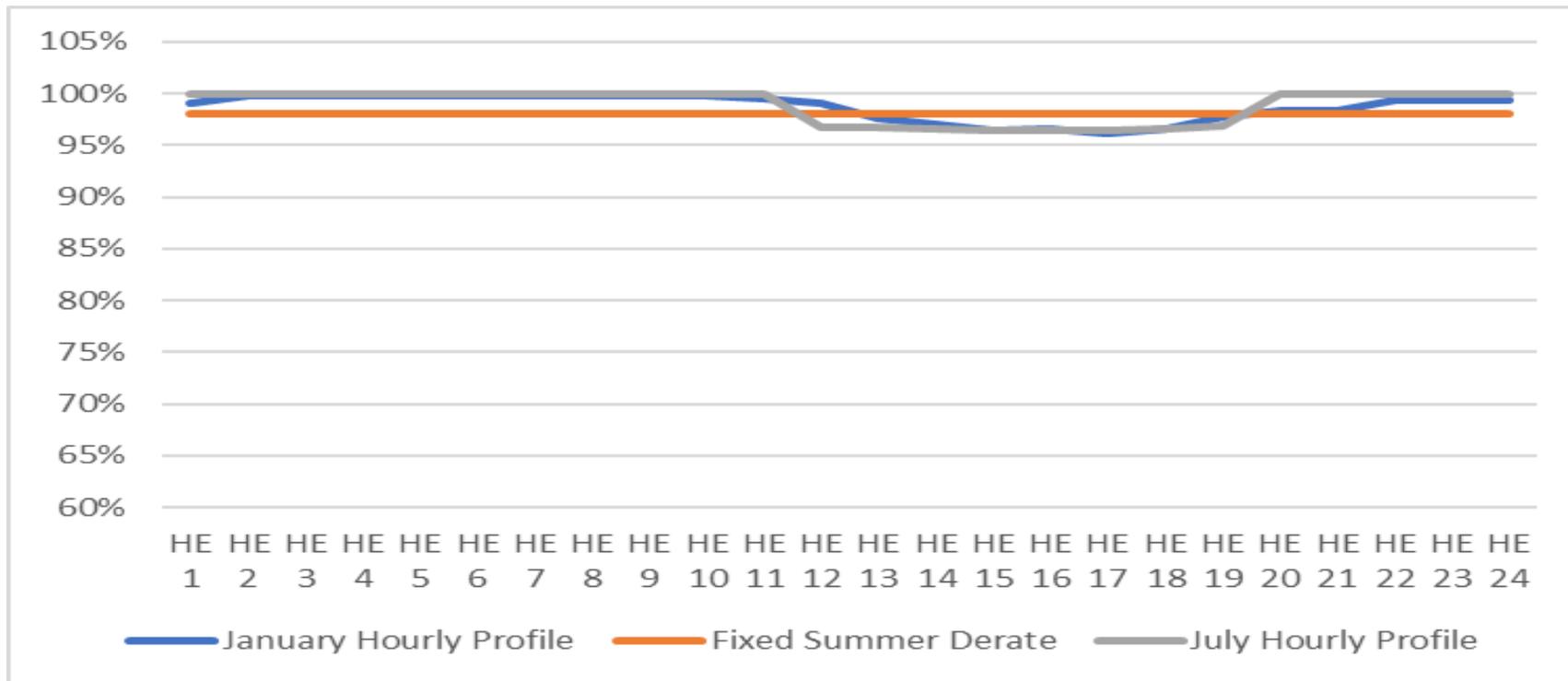


- ▶ Hourly profile has higher capacity than fixed derate from HE 20 to HE 12
- ▶ Some LSEs may benefit from plants sacrificing mid-day capacity in exchange for higher capacity in other hours

Midway Peaking Hourly Profile



Marsh Landing 1 Hourly Profile



Hourly Shape Allows Plants to Offer More Capacity Outside Net Peak

- ▶ Large differences between max hourly summer and fixed summer capacities for some plants
 - ▶ Mostly benefits inland plants
- ▶ Desert Star: 23.4% (HE 1 – HE 9, HE 23 – HE 24)
- ▶ Midway Peaking: 11.3% (HE 1 to HE 11)
- ▶ Marsh Landing 1: 2.0% (HE 1 – HE 11, HE 20 – HE 24)